

IN THE SPECIFICATION:

Insert the following new heading after line 1, before line 2 of page 1 as follows:

B1

Field of the Invention

Insert the following new heading before line 5 of page 1 as follows:

B2

Background Information

Paragraph beginning at line 5 of page 1 has been amended as follows:

B3

In the end face polishing device of the related art, polishing is performed by pressing a polishing disc moving by a combination of rotation and revolution on an end face of a fixed bar member as described in Japanese Patent Laid-Open No. 296451/2000. ~~Locus~~ A locus of polishing has a shape where plural circles moving on a circumference of radius r to a center P overlap continuously as ~~showing~~ shown by locus 1 in Fig. 1. The state of making a circuit of an external circumference 2 of the locus 1 is shown in Fig. 2. As shown in Fig. 2, an internal circumference 3 of the locus 1 has much overlapping of the locus, the abrasion quantity of a polishing sheet ~~increases~~ is increased, and the polishing sheet can not

B3

be used uniformly, ~~thereby~~. Accordingly, efficient use of the sheet is difficult to accomplish.

Paragraph beginning at line 18 of page 1 has been amended as follows:

B4

~~Then,~~ It is an object of the present invention is to prevent local concentration of the locus overlapping of polishing on the polishing sheet and to improve efficiency of polishing.

Paragraph beginning at line 21 of page 1 has been amended as follows:

B5

In the polishing device of the related art, since a locus of the end face on the polishing sheet consists of circles moving along a ~~en~~ circumference, it is ~~needed~~ necessary to increase the rotational speed of rotation or revolution in order to increase the polishing speed. ~~At increasing~~ However, an increase in the rotational speed, ~~there is a problem that results in~~ scattering of abrasive liquid caused by centrifugal force, ~~occurs so that polishing is difficult thereby making it difficult to perform the polishing operation.~~

Paragraph beginning at line 6 of page 2 has been amended as follows:

BL In the present invention, an end face polishing device ~~comprising~~ comprises a pressing unit for pressing an end face of a fixed bar member to a polishing sheet and a driving unit for driving the polishing sheet in a roulette-like ~~roulette shape moving~~ movement while rotating on a circumference parallel to the end face of the bar member ~~is used~~. Here, the a roulette shape movement means a curved line where a fixed point on another curved line moves when another curved line rolls along a fixed curved line.

Paragraph beginning at line 13 of page 2 has been amended as follows:

BM Then ~~in the invention,~~ In another aspect, the present invention is directed to a method for polishing an end face of a fixed bar member by ~~having steps of pressing an~~ the end face of a the fixed bar member ~~to~~ against a polishing sheet, driving the polishing sheet in a roulette shape movement ~~moving~~ while rotating on a circumference parallel to the end face of the bar member, ~~and making the end face for polishing disc is used.~~

Paragraph beginning at line 18 of page 3 has been amended as follows:

B8

The invention is an end face polishing device comprising a pressing unit pressing an end face of a fixed bar member to a polishing sheet and a driving unit driving the polishing sheet in ~~roulette shape moving~~ a roulette-like movement while rotating on circumference parallel to the end face of the bar member. By using roulette-like movement ~~roulette~~, relative speed of end face of a bar member to a polishing sheet varies, and polishing speed can be increased at high area in relative speed. Oppositely, in low area in relative speed, time that polishing liquid flows into area where quantity of polishing liquid decreases by contact of the end face on the polishing sheet increases, quantity of the polishing liquid becomes constant even when loci of polishing are overlapped, and high symmetric to axis of the bar member, that is, little eccentric polishing becomes possible.

Paragraph beginning at line 14 of page 5 has been amended as follows:

B9

The invention has steps of pressing an end face of a fixed bar member to a polishing sheet, driving the polishing sheet in ~~roulette shape moving~~ with roulette-like movement while rotating on circumference parallel to the end face of the bar member, and making the end face for polishing disc.

Paragraph beginning at line 19 of page 5 has been amended as follows:

B10 Here, the ~~roulette~~ roulette-like movement may be a cycloid. Further, the roulette-like movement may be an internal cycloid. Moreover, the ~~roulette~~ roulette-like movement may be an external cycloid.

Paragraph beginning at line 22 of page 5 has been amended as follows:

B11 Further, the ~~roulette~~ roulette-like movement may be a relative ~~trochoid~~ trochoid inscribed to a first circle and drawn by a point fixed at a second circle smaller in diameter than the first circle. The roulette-like movement ~~roulette~~ may be a relative external ~~trochoid~~ trochoid inscribed to the first circle and drawn by a point fixed at out of the second circle smaller in diameter than the first circle.

Paragraph beginning at line 3 of page 6 has been amended as follows:

B12 Especially, the ~~roulette~~ roulette-like movement may be a relative internal ~~trochoid~~ trochoid inscribed to a first circle and drawn by a point fixed in the second circle smaller in diameter than the first circle.

Heading at line 22 of page 6 has been amended as follows:

~~EXAMPLE~~

Paragraph beginning at line 23 of page 6 has been amended as follows:

B13
An ~~example~~ embodiment according to the invention will be described in detail with reference to Figs. 4-9 ~~referring figures~~. Fig. 4 is a sectional view showing a driving mechanism of the end face polishing device according to the invention. An elastic body 30 is arranged on a top portion of a polishing disc 10 through a frame 20 of an external circumference, a polishing sheet 40 is arranged on the elastic body 30, an end face of a bar member is pressed ~~to~~ against the sheet 40, ~~so polishing is performed during a~~ polishing operation.

Paragraph beginning at line 7 of page 7 has been amended as follows:

B14
~~Lower~~ A lower face side of the polishing disc 10 and a flange 60 on a revolution shaft 50 are connected through plural fixed pins 70a and 70b, and the polishing disc 10 is supported by the revolution shaft 50. The revolution shaft 50 is connected to a rotation shaft 80 at eccentric position in designated quantity to the rotation shaft 80 through a transfer gear 100 is connected to a transfer gear 101

B14

coaxially. The transfer gear 101 engages with an internal gear in the frame of main body of the polishing device.

Paragraph beginning at line 18 of page 7 has been amended as follows:

B15
The lower part of the revolution shaft 80 ~~are~~ 50 is connected to a rotation portion 230 through a timing belt 220 arranged at outer side of a pulley 210 connected to a driving shaft of a motor 200 and engages with an internal gear of the rotation portion 230.

Paragraph beginning at line 1 of page 8 has been amended as follows:

B16
~~Locus of A~~ A polishing locus of the polishing device according to the invention will be described below. Fig. 5 is a view ~~when~~ showing the instance when the revolution radius in the rotation shaft is large, and the locus is a continued locus 1 where a shape 4 is given ~~consisting of~~ a roulette roulette-like movement in the form of a cycloid shape ~~having~~ and has sharp points 5 and revolves in the external circumference 2 where circumference of radius r is center through center P of external circumference 2. ~~Then,~~ By this polishing locus, overlapping of locus of the internal circumference portion 3 is removed.

Paragraph beginning at line 11 of page 8 has been amended as follows:

B17
Fig. 7 is a view when revolution radius in the rotation shaft is small, a shape 6 of locus becomes a shape of three leaves. By driving the shape continuously, the locus becomes like locus 1, ~~further.~~ Further, by going around in the external circumference 2, the density of locus of the internal circumference 3 becomes low as shown in the locus 1 of Fig. 8.

Paragraph beginning at line 11 of page 8 has been amended as follows:

re-duplicate
Fig. 7 is a view when revolution radius in the rotation shaft is small, a shape 6 of locus becomes a shape of three leaves. By driving the shape continuously, the locus becomes like locus 1, ~~further.~~ Further, by going around in the external circumference 2, the density of locus of the internal circumference 3 becomes low as shown in the locus 1 of Fig. 8.

Paragraph beginning at line 17 of page 8 has been amended as follows:

B18
Fig. 9 is a view of the case when ~~further~~ the ratio of revolution diameter is further varied, ~~the.~~ The locus becomes a shape 7 of locus having five times of symmetric axis

B18

in the external circumference 2. Fig. 10 is a view where similarly the shape of the locus 1 goes around driving continuously, and in which a high density locus 1 is obtained in the external circumference 2, and so that the polishing sheet can be used efficiently.

Paragraph beginning at line 23 of page 8 has been amended as follows:

According to the invention, since a locus of the end face is given a roulette-like motion ~~of roulette shape moving~~ while rotating on the circumference, ~~is obtained,~~ life of the polishing sheet can be made long ~~so as to obtain a short polishing device in~~ and the polishing time can be decreased to provide a polishing device having a high polishing speed.

B19